

## VIII. HISINGERITE, PSEUDOMORPHOUS AFTER CALCITE.

Many years ago the late Julius E. Raht, of Cleveland, Tennessee, sent me a suite of minerals from the Ducktown mines, which he was then working. Among them was a specimen composed principally of the ores of that mine, pyrrhotite and chalcopyrite with a small admixture of zoisite, which was covered with crystals of calcite, in part altered into a dark brown mineral with resinous lustre. The calcite is in the form of irregular hexagonal prisms, showing planes of a scalenohedron, the smaller ones terminating in acute scalenohedrons. The largest crystals are about 20<sup>mm</sup> in length and 10<sup>mm</sup> thick. They all contain a nucleus of unaltered calcite, the hisingerite surrounding the core of calcite is from 2 to 4<sup>mm</sup> in thickness. With a small quantity (0.2236 grm.) of fairly pure material I made an analysis, the results of which show that the pseudomorphous mineral belongs probably to hisingerite, gillingite or thraulite, if they are not all more or less pure varieties of the same species.

The analysis gave :

Loss by ignition	=	23.70
SiO <sub>2</sub>	=	24.42
Fe <sub>2</sub> O <sub>3</sub>	=	49.02
ZnO	=	1.17
CaO	=	1.83
MgO	=	0.41
		100.55

UNIVERSITY OF PENNSYLVANIA, March 16, 1887.

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*Synopsis of the Batrachia and Reptilia obtained by H. H. Smith, in the Province of Mato Grosso, Brazil.*

*By E. D. Cope.*

*(Read before the American Philosophical Society, March 18, 1887.)*

The Naturalist Brazilian Exploring Expedition commenced its work in the province of San Paulo. From the neighborhood of Sao Joao do Rio Negro a collection of Batrachia and Reptilia was forwarded to the writer, and a list of them was published in the Proceedings of this Society, 1884, p. 185.\* Mr. Smith then went into the interior, crossing the mountains into the province of Mato Grosso to Cuyabá, on the headwaters of the Paraguay river. After a short sojourn at this town, he selected for resi-

\* In this collection there occurs a species of Pseudis which I had identified with the *P. paraguayana*. In comparison with the type of the *P. mantiductyla* the specimens turn out to belong to that species, as supposed by Dr. Boulenger.

dence the village of Chupada, thirty miles north-east of Cuyalá, and near the headwaters of the Xingu, an important tributary of the Amazon. The species embraced in the following list were obtained at or near this town. I reserve any general remarks to the close of the paper.

## BATRACHIA.

### ANURA.

#### ARCIFERA.

1. *BUFO MARGARITIFER* Laur. Abundant.
2. *SCYTOPIS ALLENII* Cope. *Proceeds. Amer. Philosoph. Soc.*, 1869, p. 162  
Several specimens, representing a color variety, which lacks the lateral dark band.
3. *HYLA MELANARGYREA*, sp. nov.

Vomerine teeth in two small patches entirely between the choanæ, and scarcely reaching to the line of the posterior borders of the latter. Manus palmated to the discs of the third and fifth digits, but not to that of the third, and marking the basal third of the second ("first"). Pes webbed in much the same way; the web reaching the discs of the second, third and fifth digits, the middle of the penultimate of the first, and the base of the penultimate of the fourth.

The head is short, entering the length of the head and body, three and two-thirds times. Hind leg extended measuring the orbit with the heel. Hind foot short, equaling length of femur from groin. Fore-arm and foot, and tarsus and foot, with a free posterior edge, which has regular dermal thickenings, which give it a serrate appearance. The humerus is bound to the side by a dermal sheet which crosses the axilla to the middle of the posterior border of the former. Trace of a posterior dermal fold on the tarsus. No dermal process on the heel. Skin of upper surfaces with small scattered warts, which are most numerous and prominent on the sides. A pectoral fold from axilla to axilla.

The head is obtuse and depressed, with canthus rostralis not evident, and muzzle rather wide, and not prominent, but with vertical profile. Nostril terminal; side of muzzle as long as long diameter of orbit. Tympanic membrane round, three-fifths diameter of eye slit. Tongue subround, with an open notch posteriorly.

Color above, blackish gray, like a stain of dilute silver nitrate, with slightly darker areas included in darker lines. One of these is a large triangle whose base extends from one superciliary border to the other, and whose truncate apex is between the scapulae: another is a large transverse area across the sacrum, which extends downwards and backwards on each side. Between these areas are several smaller ones on the back, and there is a large area on the side posterior to the axilla. An area encloses each canthus rostralis, enclosing with the large triangle a **└**-shaped area of ground-color. There is a dark gray spot on the lip in front of the orbit, and a narrow one descending from the posterior part of the orbit. A dark

line extends from the orbit above the tympanic drum to the axilla. Posterior side of humerus and axillary web, black, the color produced in an angle towards the middle of the thorax on each side. Groin, femur except lower surface, inferior side of tibia and hind foot, anterior face of tarsus and web of inner three toes, pitchy black. A row of five or six small, silvery gray spots on the superior surface of the femur and surrounding the vent. With this exception, the superior surfaces of limbs light gray with darker gray cross-bands with black edges; three on the tibia.

	M.
Length head and body.....	.039
"    "    to posterior line of tympana.....	.0095
Width    "    at    "    "    "    "    "    .....	.013
Length of anterior limb anteriorly.....	.0265
"    "    "    foot.....	.011
"    "    posterior limb from groin.....	.0575
"    "    "    foot.....	.026
"    "    "    "    without tarsus.....	.016

This species belongs to the same group as the *Hyla marmorata* in the general characters of skin and coloration. It is however of more slender form, and has less extensive palmation. The color differs in the absence of the yellow, which is so conspicuous in the *H. marmorata*, and in other respects.

Three individuals.

#### 4. HYLAE VELATA, sp. nov.

Size small; head short, wide, muzzle obtuse, not prominent, not long as the diameter of the eye. Nostril terminal. Tympanic membrane not very distinct, diameter not more than one-third that of the eye-slit, in some specimens one-fourth. Canthus rostralis not distinct, vomerine teeth between choanæ, not projecting posterior to the line connecting them. Tongue subround, with an open median notch behind.

The length of the head to the line connecting the posterior borders of the tympanic membranes, is contained in that of the head and body three and a half times. The hind leg when extended marks the end of the muzzle with the heel. The skin of the upper surfaces is smooth. An extension of the skin of the sides binds the humerus by its proximal half. There is a web between all the fingers which does not reach the discs of the third and fifth, being less than a half palmation. The web of the pes does not quite reach the discs of the digits excepting the fourth, where it leaves two and a half phalanges free. No dermal fold on the tibia or fore-arm.

Color above golden-brown, with a large patch finely dusted with dark brown, with a narrow dark-brown border, extending from between the eyes to the middle of the back, and sending a broad branch down to the middle of each side without defined inferior border. The outlines are con-

tracted at the suprascapular region, leaving a wide band of the paler ground color between it and a black line posterior to the eye. A very convex crescent-shaped area extends forwards from the posterior parts of the iliac region on each side, presenting a convexity forwards on the sacrum. Lips, sides, humerus and femur thickly dusted with brown, and without other spots or marks. Fore-arm and tibia with dark-brown cross-bars; on the latter narrow, and four in number. A pale border on external edge of foot from heel. Inferior surfaces cream-colored, immaculate.

	M.
Length of head and body . . . . .	.023
“ “ “ to posterior line of tympana . . . . .	.0068
Width “ “ at “ “ “ “ . . . . .	.0084
Length of fore leg . . . . .	.014
“ “ “ foot . . . . .	.006
“ “ hind leg . . . . .	.0385
“ “ “ foot . . . . .	.017
“ “ “ “ less tarsus . . . . .	.009

There is a good deal of affinity between this species and the last. The differences are as follows: In *H. velata* the posterior legs are longer, and the manus is less palmate. There are no dermal borders on the limbs. The femur is unspotted, and the black color so conspicuous in the *H. melanargyrea* is absent. The dimensions are strikingly different, the species just named having nearly twice the linear measurements of the *H. velata*.

Four specimens.

##### 5. *HYLA NIGRA*, sp. nov.

Habit moderately slender; heel reaching end of muzzle. Length of head to posterior borders of tympana, enters length of head and body three times. The urostyle and pelvis are rather short, the former equaling the length of the head to the line of the posterior border of the orbits. The muzzle is slightly acuminate when viewed from above, and projecting beyond the mouth in profile. The canthus rostralis is concave, and the orbit is just as long as the muzzle. Nostrils subterminal. Tympanic drum round, one-fourth the diameter of the orbit, and bounded above by a dermal fold. Vomerine teeth in two fasciculi between the nares, their posterior edges a very little behind the borders of the latter. Tongue subround, with an open notch in the free border.

Digits of manus entirely free; the fourth quite long, and the fifth exceeding the third in length. Second digit opposed to third. Dilatation of fourth digit just fitting within border of tympanic disc. Toes webbed to the dilatations of the second, third and fifth digits, and to the base of the antepenultimate phalange of the fourth and first.

Skin with numerous short longitudinal and not very prominent warts on the superior surfaces of the head and body. No distinct axillary membrane.

Superior surfaces uniform black. Gular region, inferior surface of

thigh and tarsus dusted with dark brown. Posterior part of side, front and hind face of femur and inferior face of tibia, more or less closely marbled with brown on a white ground, the brown predominating on the posterior face of the femur. The brown dusting extends across the inferior surface just behind the axillæ. Concealed surface of pes and web, marbled dark brown and white. The coloration is peculiar in that the superior surfaces of the humerus and tibia are colored like the rest of the body.

	M.
Length of head and body .....	.034
“ “ “ to posterior line of tympana.....	.010
Width “ “ at “ “ “ .....	.013
Length of fore leg, on front.....	.023
“ “ “ foot.....	.011
“ “ hind leg, from groin .....	.057
“ “ “ foot. ....	.026
“ “ “ “ minus tarsus.....	.010

This species approaches the genus *Scytopsis* in the very narrow frontoparietal frontanelle.

#### 6. HYPYSIBOAS BOANS Daudin.

One specimen rather smaller than usual. The femur is brown posteriorly, with small scattered yellow spots.

#### 7. HYLODES CONSPICILLATUS Günther.

*Hylodes guentheri* Steindachner. Verh. Zool. Bot. Gess. Wien., 1864, p. 246, Pl. xvii, fig. 1.

Numerous individuals, all with the posterior face of the femur unicolor.

#### 8. PALUDICOLA NATTERERI Steind.

A very abundant species, always without tarsal spur as described by Steindachner. The lumbar gland is black with a white border, and the groin below it and the posterior face of the femur is beautifully marbled with black on a white ground. Vomerine teeth none. Tongue subcylindric.

#### 9. PALUDICOLA KROYERI R. & L. *Liuperus sagittifer* Steind.

Three specimens, two with the oblique longitudinal bands described by Steindachner, and the other unicolor above, having only the black lateral band extending from the end of the muzzle.

#### 10. PALUDICOLA SALTICA, sp. nov.

Characterized by the great length of its posterior legs. It has the form of the North American *Aeris*, and is probably like it, a great jumper.

Muzzle narrowly acuminate, and projecting a little beyond the lip border. No canthus rostralis; nostril looking partly upwards, half way between end of muzzle and orbit. Interorbital space not wider than eyelid. Tym-

panic membrane not distinguished. Tongue diamond-shaped with rounded angles, extensively free and entire behind. No vomerine teeth.

Hind legs long; when extended the muzzle marks a little beyond the middle of the tibia. Second finger shorter than third. Toes with a dermal margin. Two metatarsal tubercles, both small, the internal larger and subconical, and giving origin to a dermal fold which extends to the middle of the tarsus. No tarsal tubercle. Skin of upper surfaces and sides with numerous small warts. Inferior surfaces smooth.

Color of adult dark-brown on superior and lateral surfaces, of younger individuals gray. The median dorsal region is marked with a wide black or dark-gray tract with undulating borders from between the eyes to the end of the urostyle, and this is again divided in many specimens by a median white band which extends from the vent to the end of the muzzle. In the adult the femur has one, and the tibia has two blackish cross-bands, and the superior edge of the tibia is pale-colored on its distal fourth. Posterior face of femur, and superior face of humerus, pale-brown. Posterior foot with numerous brown cross-bands. Below white (inferior surfaces of hind legs possibly yellow in life); the lower lip black all round, the color advancing towards the throat on each side. This mark is present on all the specimens.

	M.
Length of head and body.....	.020
“ “ “ to posterior line of tympana.....	.007
Width “ “ at “ “ “ “ .....	.007
Length of fore limb.....	.012
“ “ “ foot.....	.005
“ “ “ hind limb from groin .....	.0413
“ “ “ foot.....	.020
“ “ “ “ without tarsus.....	.013

One adult and several young specimens. Readily distinguished by its very long hind legs, peculiarly shaped head, etc.

#### 11. PALUDICOLA MYSTACALIS, sp. nov.

Size small. Heel of extended hind leg reaching to front of orbit.

Muzzle a narrow oval as viewed from above, a little longer than the diameter of the orbit, and not projecting beyond the lip-border. Canthus rostralis indistinct. Interorbital space wider than eyelid. Gape of mouth wide. Tongue narrow, extensively free, entire behind. Nostrils two-fifths way from end of muzzle to orbit. Tympanic disc concealed. Second finger (“first”) shorter than third, which is in turn a little shorter than fifth. Two large palmar tubercles. Terminal phalanges not shorter nor expanded at the extremities, but obtuse. The close contact of the third, fourth and fifth metatarsals gives the foot a narrow form, especially as the first and second digits are short. The other digits, especially the fourth, are quite slender, with elongate narrowed terminal phalanges as in *Lepto-*

ductylus. No dermal margins. Skin generally smooth; no discoidal ventral fold.

Color of superior surfaces and sides, black. A broad white band extends from each eye to the groin; it is distinct in the young, obscure in the adult. It is bounded below by a black band which widens near the axilla. A white line extends on the middle line from the extremity of the muzzle near the end of the urostyle. In the young it sends off a little branch on each side to the eyelid. The upper lip is marked as follows: A white vertical bar marks the middle of the premaxilla; two bars are below the nostril, and two larger ones below the eye. A short distance behind the latter a white stripe commences and extends to the axilla. The superior face of the femur is pale longitudinally; the posterior face is brown, with a pale longitudinal band in the centre. Under surfaces white, except that the throat and breast are faintly brown spotted. The femora are similarly brown spotted in an oblique tract from the anus to the anterior aspect of the knee.

	M.
Length of head and body .....	.0172
“ “ “ to line of tympana.....	.0057
Width “ “ at “ “ “ .....	.0052
Length of anterior limb.....	.009
“ “ “ foot.....	.0047
“ “ posterior leg from groin.....	.0267
“ “ “ foot.....	.0135
“ “ “ “ minus tarsus .....	.009

But three specimens of this species was obtained by Mr. Smith, and these are of small size. All their parts are, however, fully ossified, and its characters developed.

### 12. PALUDICOLA AMEGHINI, sp. nov.

No lumbar gland nor tarsal tubercle, nor vomerine teeth. Skin covered with large flat warts irregularly arranged.

Muzzle short and acuminate; no canthus rostralis; muzzle not projecting in profile. Nostril half way between its extremity and the orbit. No membranum tympani. Interorbital space a little wider than eyelid. Second finger shorter than third. Extended hind limb reaching with the heel half way between orbit and nostril. Two metatarsal tubercles small but distinct, a diagonal fold extending from the internal to the middle of the tarsus. Toes with narrow dermal margins, and a short web at the base. Soles smooth. General form robust.

Color of superior surfaces and sides, a lighter or darker lead-color. There is a dark band extending from one superciliary border to the other, and there are indirect cross-bands on the hind legs. Very indistinct light bars on upper lip. Below white, the border of the lower jaw densely marbled with blackish. Posterior face of femur dark, with a longitudinal pale line near the inferior side.

	M.
Length of head and body.....	.0155
“ “ “ to line (posterior) of tympana.....	.0055
Width “ “ at “ “ “ .....	.005
Length of anterior leg .....	.009
“ “ “ foot.....	.004
“ “ posterior leg.....	.0258
“ “ “ foot.....	.012
“ “ “ “ less tarsus.....	.008

This species belongs to the group of *P. marmorata* of Boulenger's system. Two specimens.

Dedicated to my friend Dr. Florentine Ameghino, the distinguished naturalist of Buenos Ayres.

### 13. LEPTODACTYLUS GRACILIS D. & B.

One rather large individual.

### 14. LEPTODACTYLUS BREVIPES, sp. nov.

Form rather stout, legs short. The heel of the extended hind leg reaches to the middle of the orbit, and the foot is as long as the rest of the leg measured to the groin.

The outline of the head from above is an acuminate oval. The muzzle projects a little beyond the lip when viewed in profile. The top of the head is flat, but the canthus rostralis is so obtuse as to be scarcely noticeable. The nostril is almost terminal, and as far from the orbit as the diameter of the latter. The tympanic membrane is round, and is equal to two-thirds the orbit in diameter. The vomerine teeth are in two short, nearly transverse patches, well behind the internareal palatal space. The tongue is a wide oval, slightly emarginate behind.

The second, fourth and fifth fingers are equal in length. The toes contract to their extremities, and have a membranous border on each side and a rudimental web at the base. The external border of the external toe is continued along the external edge of the sole of the calcaneum, terminating near a small, round tubercle. The internal tarsal tubercle is an oval, attached by one side. There is an obtuse dermal ridge extending along the inner edge of the tarsus.

There is a strong dermal fold above the tympanic membrane, which is deflected towards the humerus. Another ridge extends from the eyelid to above the axilla. Another ridge commences a short distance from the end of the last mentioned, and ceases just above the groin. Skin of superior surfaces with numerous small warts, below, except adjacent parts of femora, smooth. A discoidal fold of abdominal integument. All the ridges and warts of the upper surface might readily disappear on prolonged preservation in weak alcohol.

The color of the upper surfaces is a blackish brown, which does not extend on the sides, but forms a dark band from the eye through the tympanum to near the shoulder. There is a paler band across the front



between the eyelids, bounded posteriorly by the base of an indistinct dark triangle, which is darker than the rest of the back. The lips are clouded, and there is a vertical pale line on the end of the muzzle, and a similar one on each side of it below each nostril. The ground color of the legs is gray. The humerus is uniformly pale, but the fore-arm is blackish speckled. There are four wide blackish cross-bands on the femur, and three on the tibia. Femur behind closely marbled with black on a dirty whitish ground. Inferior surfaces straw-color, with indistinct brown speckles on inferior face of tibia, femur, and lower jaw. The sole is blackish from the heel, and there are five blackish cross-bands on the outside of the foot. Groin marbled with black, and a few shades in the axilla.

	M.
Length of head and body.....	.054
"    "    "    to posterior line of tympana.....	.015
Width    "    "    at    "    "    "    "    "    "    .....	.020
Length of fore leg.....	.025
"    "    "    foot.....	.011
"    "    hind leg from groin.....	.074
"    "    "    foot.....	.031
"    "    "    "    less tarsus.....	.024

Though allied in important characters to the *L. (Crossodactylus) gaudi-chaudii*, the differences are numerous, to judge from the description given by Boulenger (Catal. Bat. Sal. B. M., p. 249). The well-developed vomerine teeth, the terminal nostril, the weak tarsal tubercles and the ventral discoidal fold are some of these.

One specimen.

#### 15. LEPTODACTYLUS GLANDULOSUS, sp. nov.

Small; extended hind leg reaching middle of eye. Toes without dermal margins. Vomerine teeth in two transverse fascicles well behind the line connecting the choanae.

Muzzle narrowed, somewhat prominent, rounded transversely and without distinct canthus rostralis. Nostril two-fifths the distance from the extremity of the muzzle to the eye. Tongue oval, entire posteriorly. Tympanic drum one half diameter of eye-slit. First finger not longer than second. Metatarsal tubercles two, both very small. Palm and sole tubercular, the latter rough with pointed warts. Interorbital width equal that of eyelid. Skin smooth, excepting two rows of glands or glandular warts, one on the upper part of the side, extending from above the humerus to the groin, and the other above it, which terminates in a number of low warts on the posterior iliac region. Numerous similar warts on the side below the inferior glandular ridge. A groove from the eye above the tympanum towards the humerus bounds the lower side of a glandular dermal thickening.

Color blackish, dark-brown, or light-brown above, with a median

whitish line which is wanting from the anterior part of the body or head. The lighter specimens have numerous dark-brown spots on the lighter ground above. Several light vertical lines on the lip. Femur behind obscurely and finely marbled. The concealed edge of the tibia and tarsus dark cross-banded on a light ground. Below dirty white, dusted with brown on the legs, sides and gular region, and frequently on the abdomen also.

	M.
Length of head and body. ....	.024
“ “ “ to posterior line of tympana.....	.0075
Width “ “ at “ “ “ “ .....	.0082
Length of fore leg.....	.0115
“ “ “ foot.....	.0045
“ “ hind leg from groin.....	.032
“ “ “ foot.....	.0155
“ “ “ “ minus tarsus.....	.0102

Fourteen specimens.

#### FIRMISTERIA.

##### 16. ENGYSTOMA OVALE Schn.

##### 17. DENDROBATES BRACCATUS, sp. nov.

Small. Second digit of manus (“first”) much longer than third (“second”). Skin tubercular. Muzzle overhanging lip, but not much produced, truncate on superior view, about as long as diameter of orbit. Nostril nearly terminal. Tympanic disc less than half diameter of eye. Interorbital space much wider than eyelids. Tongue cylindric, entire. When the fore leg is extended, the muzzle marks the middle of the forearm. The muzzle marks the heel of the extended hind leg. Digital expansions of foot smaller than tympanum, and larger than expansions of fingers. The tuberosities of the upper surfaces are not prominent and in a soft specimen they have disappeared entirely. Skin of back very porous; no distinct glandular folds.

Black above, with a white line extending from one groin to the other, over the tympanic drum, on the edge of the eyelid, and round the end of the muzzle. Sides of head and body black; a narrow white line commencing below the nostril and extending to the humerus. Behind the humerus a large pink spot, followed by a wide irregular light band to the groin. A large pink spot in the groin and extending over the adjacent part of the femur. This spot is sometimes obscured by dark bands running across it. Limbs dark colored above, the posterior face of the femur similar, sometimes a bright spot under the knee. Under side of tibia with pink areas enclosed by black boundaries. Borders of abdomen and front of femur with small black dots. In some specimens there is a trace of two pale lines on the back about equidistant from each other and from the superior lateral lines.

	M.
Length of head and body.....	.022
“ “ “ to posterior edges of tympana.....	.007
Width “ “ at “ “ “ .....	.007
Length of fore leg.....	.014
“ “ “ foot.....	.006
“ “ hind leg .....	.0305
“ “ “ foot.....	.015
“ “ “ “ less tarsus.....	.0098

This species agrees in most of its characters with the *D. trivittatus* Spix., but is very much smaller, not measuring half its linear dimensions. As the specimens are, according to Mr. Smith, adult, they must be regarded as specifically distinct. It is also related to the *D. hahneli* of Boulenger,\* but differs in the considerably shorter posterior limbs.

The singular manner in which this species carries its larvæ is described by Mr. Smith in the American Naturalist, for April, 1887. The latter are carried, closely packed, embedded in a coating of gelatine, on the back of the parent. This constitutes a method of nursing distinct from any of those enumerated by Mr. Boulenger in his recently published table.

It approaches nearest the habit of the *Pipa monstrosa*, which also carries the young on the back. But, as is well known, the skin itself and not a gelatinous secretion, encloses the eggs and retains the young until the metamorphosis is complete in that species.

Several larvæ accompany one of the specimens of this species, which are stated by Mr. Smith to have been adhering to its back when it was taken. They do not resemble those of *Pipa*, but rather those of a *Rana* or *Bufo*. The branchial opening is on the left side, and no limbs are developed. The tail is long. The mouth is not peculiar. The decurved lower lip is present, and is furnished with two transverse series of bristle-teeth. A single series of the same extends entirely across the superior labial region, above the upper horny jaw. The papillæ are rather long, and extend all round the inferior lip, and for a short distance on each side at the lateral end of the upper lip; the series presenting an entering angle opposite the mouth.

This species is described and figured† by Steindachner in the Verhandl. der k. k. Zoolog. Botan. Ges. in Vienna, 1864, p. 258, who refers it to the *D. trivittatus* (“*nigerrimus*”), under the impression that the specimens before him are not adult. He states that the latter were labeled *Dendrobates braccatus*, by Dr. Fitzinger. This name is not adopted by Steindachner, but I use it in order not to simplify the synonymy.

#### 18. PROSTHERAPIS BRUNNEUS, sp. nov.

Viewed from above the end of the muzzle is rounded, but it is angulated at the nostrils. In profile it is vertical, as is also the loreal region.

\* Proceeds. Zoöl. Soc. London, 1883, p. 636. Pl. lvii, fig. 4.

† Plate xlii, fig. 2.

*Canthus rostralis obtuse.* Muzzle longer than diameter of orbit; nostril marking two-fifths distance from ear to orbit. Interorbital space wider than eyelid. Tympanum concealed. Tongue obovate, extensively free and entire behind.

Digital enlargements distinct; two metatarsal tubercles small and subequal. Second ("first") finger equal to second. Skin with numerous small low glandular warts, easily obscured by stretching. The heel of the extended hind leg reaches the front of the eye.

Color of superior and lateral surfaces brown; a darker brown tract commences between the eyes and extends to the middle or end of the urostyle, with contractions of width on the nape and in front of the sacrum. A nearly black band extends round the end of the muzzle on the side of the head and body to the groin. Only one, a wide brown band across femur, between which and the anal region is a pale space. The inner edge of the band becomes a blackish spot in front near the groin. One brown band across tibia; several bands on tarsus. Femur brown with many light points posteriorly. Inferior surfaces unspotted white.

	M.
Length of head and body.....	.019
"    "    " to line of tympana.....	.006
Width    "    " at    "    "    ".....	.006
Length of anterior leg.....	.0108
"    "    "    foot.....	.004
"    "    posterior leg from groin.....	.0265
"    "    "    foot.....	.0125
"    "    "    " minus tarsus.....	.0074

Numerous specimens, mostly young.

The discovery of this species is of much interest, as it gives the genus *Prostherapis* a continental distribution. First detected in the extreme north-west of the Colombian district, it has been identified by Boulenger next from Ecuador,\* and later from northern Peru.† To the present time the latter is the most eastern locality known for it.

#### LACERTILIA.

19. *ANOLIS FUSCOAURATUS* D. & B. One specimen.
20. *ANOLIS BINOTATUS* Peters; Boulenger, Catalogue. Abundant.
21. *POLYCHRUS ACUTIROSTRIS* Spix. Abundant.
22. *SCARTISCUS CADUCUS* Cope. Two specimens.
23. *MICROLOPHUS SPINULOSUS* Cope. Abundant.
24. *ECPHYMOTES TORQUATUS* Spix. Not rare.
25. *HOPLOCERCUS SPINOSUS* Fitz. One specimen.
26. *TUPINAMBIS TEGUEXIN* L.
27. *AMEIVA SURINAMENSIS* L. Abundant.

\* Catl. Batr. Sal., Brit. Mus., 1882.

† Proc. Zool. Soc. London, 1883, p. 635.

28. CNEMIDOPHORUS OCELLIFER Spix. Three.  
 29. PANTODACTYLUS SCHREIBERSII Wieg. Two.  
 30. CERCOSAURA OCCELATA Wagl. One.  
 31. EMEEA FRENATA Cope. Abundant.  
 32. AMPHISBÆNA ALBA L. Abundant.  
 33. LEPIDOSTERNUM MICROCEPHALUM Wagl.

## OPHIDIA.

## TORTRICINA.

34. TORTRIX SCYTALE L.

## ASINEA.

35. BOA CONSTRICTOR L.

36. APOSTOLEPIS ERYTHRONOTUS Peters; *Elapomorphus erythronotus* Peters, Monatsberichte K. Akad. Wiss., Berlin, 1880, 222.

Subspecies LINEATUS Cope.

This form agrees exactly in pholidosis with Peters' description, above cited, of specimens from San Paolo, but differs much in coloration. It presents five longitudinal brown lines on the upper surface which mark the third and fourth, the fifth and sixth, and the median rows of scales respectively. In the adult, the line on the fifth and sixth rows is obsolete. The inferior surfaces are immaculate, except that the black collar is visible on the sides of the neck, from below. In the form *erythronotus*, the gastrosteges have black centres, according to Peters.

37. RHYNCHONYX AMBINIGER Peters, Monatsber. Berlin Akad. Wiss., 1869, p. 437.

Subspecies VITTATUS Cope.

This form differs from the typical form described by Peters, in having longitudinal color bands. These are dark-brown, and are located on the fourth, sixth and median rows of scales respectively, occupying only the middle of each row. The space between the sixth rows of opposite sides is pale brown; external to the sixth row and below, dirty white. The entire coloration is so like that of the young of *Apostolepis erythronotus lineatus*, as to be a case of mimetic analogy.

The present specimen confirms the correctness of the locality given by Peters.

38. TANTILLA PALLIDA, sp. nov.

Postocular plates two, labials seven, the posterior elevated and separated from the parietal by one and a part of another temporal. Postnasal and preocular plates well separated.

Characters normal. Postnasal bounded below by first labial, behind by second labial, which reaches frontal. Preocular deeper than long. Third and fourth labials bounding orbit, the latter also bounding inferior postocular below. Fifth labial higher than wide; the sixth of equal height, which equals the middle; the seventh largest of all, a little higher than wide (or long). A large temporal bounds the fifth and sixth above, and a

narrower one the seventh above, by its anterior third. Inferior labials seven, the fourth much the largest; the first of opposite sides separated by the symphyseal. Postgenials shorter than pregenials. Frontal with produced posterior angle; parietals elongate. Gastrosteges 148; anal 1-1; urosteges 57.

Color very pale brown above, white below. Top of head black; a broad black collar incomplete below, and connected with the head color on the middle line. A white spot on labial below nostril; another below and behind orbit, which extends to the last superior labial, and connects with the pale collar. Edges of scales on sides, brown-dusted.

Total length 285; of tail 65mm., or a little less than one-fourth the total. One specimen.

39. RHADINÆA OCCIPITALIS Jan. *Enicognathus occipitalis* Jan., Iconogr. Gen. des Ophidiens Livr., 16; Pl. 1, fig. 1. Two specimens.

40. APOROPHIS ALMADENSIS Wagl. Abundant.

41. OPHEOMORPHUS BRACHYURUS, sp. nov.

Form robust, tail remarkably short, constituting less than one-sixth the total length. Head wider than the neck, muzzle rather short.

Rostral plate rounded, visible from above. Internasals as long as prefrontals, the median sutures of both not continuous, but each oblique to the middle line. Frontal narrowing behind; the parietals not longer than the frontal, emarginate at the point of union posteriorly. Loreal plate much higher than long. Preocular narrow, not or barely reaching frontal. Postoculars two, the inferiors quite small. Temporals 1-2. Superior labials eight; the third narrowed; fourth and fifth entering orbit; the last three large, the seventh higher than long. Inferior labials ten, sixth largest. Genials unequal, the posterior pair short. Scales small, poreless, in 19 longitudinal rows. Gastrosteges 153; anal 1-1; urosteges 39. Measurements, No. 1, total length 371mm.; tail 55mm.; No. 2, total 435 mm.; tail 67mm.

Color, above bright green; below pale yellow. No markings. On the superior labial plates the green and yellow pass into each other.

This species is allied to the *Opheomorphus typhlus*, but has a relatively much shorter tail. It is a much more robust snake than the *O. jægeri* and it does not possess the brown dorsal stripe of the latter.

Two specimens.

42. OPHEOMORPHUS MELEAGRIS Shaw; subsp. DOLIATUS Wied.

A large specimen in the which the black annuli are so wide as to nearly meet on the dorsal region, leaving only traces of the ground color between them. I have often had occasion to observe that this annulate coloration characterizes adults as well as young.

43. LIOPHIS REGINÆ L., var. with unicolor parietals.

44. ERYTHROLAMPRUS VENUSTISSIMUS Wied.

45. DIPSAS CENCHOA Linn.

46. SIBON ANNULATUM Linn.

47. TACHYMENIS STRIGATUS Gthr. *Tomodon strigatus* Günther; *Tachymenis hypoconia* Cope, teste Boulenger.
48. OXYRRHOPUS TRIGEMINUS D. & B.
49. OXYRRHOPUS RHOMBIFER D. & B.
50. OXYRRHOPUS PETALARIUS Linn.
51. LEPTOGNATHUS TURGIDA Cope; var. in which the top of the head is uniform blackish.
52. SPILOTES CORAÏS Linn.
53. HERPETODRYAS CARINATUS L. Abundant.
54. DRYMOBIUS PANTHERINUS Merrem.
55. DIRRHUX LATIVITATUS, sp. nov.

The generic name *Dirrhox* is proposed as a substitute for *Callirhinus* Girard, a name used by Cuvier for a genus of seals. The type is *Dirrhox patagoniensis* Girard, which is described in the report of the U. S. Exploring Expedition under Commodore Wilkes (1858, p. 139). It is a terrestrial form of *Philodryas* with two loreal plates one above the other. The name was first proposed in my catalogue of the Batrachia and Reptilia of Central America and Mexico, Bulletin U. S. Nat. Museum, No. 32, 1887, Index. At the same time (l. c.) I propose the generic name *Atomophis* for the *Philodryas trilineatus* of Burmeister (*Dryophylax burmeisteri* Jan.), in which the loreal plate is wanting.

The *Dirrhox lativittatus* is a handsome species of moderately slender proportions, and with the head little distinct from the body. The scales are in nineteen longitudinal series, and each has a single apical pit. Muzzle rather narrow, rounded and not truncate, the apex of the rostral plate appearing on a view from above. The internasals are as wide as long, and the prefrontals a little longer than wide. The frontal has concave lateral borders, and is about as wide as the superciliaries, and as long as the occipitals. The nasals are subequal, and the loreals are placed the one directly above the other. The inferior is parallelogrammic and horizontal, while the superior is shorter and a little higher behind than before. The oculars are 1-2. The preocular is much wider above than below, and reaches the frontal. The superior postocular is larger than the inferior. The temporals are 1-2-3. The superior labials are eight in number, the fourth and fifth forming the inferior boundary of the orbit. Inferior labials eleven, the sixth largest, and in contact with the postgenaeals, which latter are a little longer than the pregenaeals. Gastrosteges 184; anal divided; urosteges 82.

The ground color above is a pale brown, which changes to olivaceous on the head. A narrow black line passes from the eye along the superior edges of the posterior labial plates, and immediately behind them widens out into a brown band, which soon occupies three and two half rows of scales, beginning with the first row. This extends to the vent where it covers two and two half rows, and still narrower to the end of the tail. A brown dorsal band commences in irregular spottings, a length of the head behind the same, and soon becomes solid,

covering three and two half scales to opposite the vent. It then contracts and continues to the end of the tail. A narrow black band extends from the gular region to the end of the tail across the ends of the gastrosteges, and is separated from the brown lateral band by a yellow stripe. Inferior surfaces unspotted, but shaded delicately with dusky. The centres of the scales of the first and second rows on the neck have a black central line, as have several scales on the throat and gular region. Some small black spots on the fourth, fifth and sixth superior labial scuta.

Total length, M., .668; length of tail, .153; of mouth to canthus, .016.

This very pretty species resembles the *Atomophis trilineatus* Burm., and the *Philodryas tenuatus* Peters. Besides the peculiarity in the double loreal plates, it differs from the former in the rounded muzzle. It is obliquely truncate in the species of Burmeister. According to Jan's figure the latter has the seventh superior labial a little longer than high, while in the *D. lativittatus* it is higher than long. The inferior lateral yellow stripe in the *A. trilineatus* is not black-bordered below. In the *Philodryas tenuatus* the preocular plate is scarcely visible from above; there are only seven superior labials, and the scales are said to be without pits.

56. *PHILODRYAS NATTERERI* Steindachner. Sitzungsber. d. K. K. Akad. Wissensch. Wien, 1870, p. 20; Pl. vii, figs. 1-2. Not rare.

57. *PHILODRYAS VIRIDISSIMUS* L.

58. *PHILODRYAS OLFERSII* Licht.

#### PROTEROGLYPHA.

59. *ELAPS LEMNISCATUS* L.

#### SOLENOGLYPHA.

60. *BOTHROPS BRASILIENSIS* Latr. Abundant.

61. *BOTHROPS NEOVIDII* Wagl. Three specimens.

62. *CROTALUS TERRIFICUS* Laurenti. *C. cascavella* Wagler, in Spix Serp. Brazil.

Several individuals, all alike and differing in color from the true *C. durissus* Linn. (*C. horridus* D. & B.). This is a brown snake with brown dorsal rhombs with narrow yellowish borders. The *C. durissus* is a yellow snake with brown dorsal rhombs which have yellow centres, the brown being little more than a border. The *C. terrifica* is figured by Seba, and by Wagler as above.

#### CONCLUSIONS.

The collection made by Mr. Smith is productive of a good many interesting results, especially to the knowledge of geographical distribution. Such are the great extension of the range of the anurous genus *Prostherapis* among *Batrachia*; of *Anolis* and *Scartiscus* among lizards; and of *Rhynchonyx* and *Dirrhox* among snakes. The rediscovery of a few species brought from the same region a half century ago by the Austrian, Johann Natterer, is of considerable interest. Such are the species *Paludicola nattereri* and *Philodryas nattereri* Steind. Other rare species only



seen in this collection for the second time, are the *Rhynchonyx ambiniger* Peters, *Rhadinæa occipitalis* Jan., *Leptognathus turgida* Cope, and *Scartiscus caducus* Cope. The number of species known and previously unknown, is as follows:

	New.	Total.
Batrachia.....	9	18
Lacertilia.....	0	15
Ophidia.....	3	29
	—	—
	12	63

#### APPENDIX ON A LEPTOGNATHUS FROM SAN PAOLO.

LEPTOGNATHUS GARMANI, sp. nov. *L. catesbeyi* Cope, Proceeds. Amer. Philos. Soc., 1884, p. 193, not of Duméril and Bibron.

Renewed examination of the specimens on which the above determination was based, shows the determination to have been erroneous. A species from San Paolo has been named by Dr. Boulenger *L. ventrimaculatus*,\* but the present snake, although resembling that species, does not belong to it.

Fifteen rows of scales, the median larger, but not maintaining its character as far as the occipital scuta. One pair of normal genials, which are short, and are followed by two pairs which are arranged en chevron, the angle directed forwards. The anterior chevron leaves a triangular space between it and the normal genial, to be filled by a triangular plate on each side. Seven superior labials, the seventh largest, the sixth next in size, and both longer than high. The fifth supports only the postocular, and the fourth the eye, so that the third only enters it by a corner on one side. Loreal a little longer than high. Oculars 0-2; nasals distinct; temporals 1-1-2. Internasals less than half prefrontals; the latter wider than long. Frontal wide as long, presenting angles both anteriorly and posteriorly, and about two-thirds as long as the large pariétals.

Color light-brown, covered with numerous wide black cross-bands, which narrow towards the gastrosteges, and are sometimes divided on the middle line, one-half alternating with the other. The centres of the spaces of ground color are darker than the margins, and sometimes contain a black spot. Top of head blackish-brown, with a T-shaped mark in lighter brown extending from the occiput to the anterior superciliary region, and a brown cross-bar across the anterior part of the prefrontals. Inferior surfaces yellow, with two irregular series of small brown spots, one on each side of the middle line. The ends of the dorsal black spots involve the ends of the gastrosteges. Gastrosteges 158; anal entire; urosteges 59. Total length 478 mm.; of tail 105.

Sao Joao do Rio Negro; H. H. Smith. One specimen. The species is dedicated to the able naturalist of Cambridge, Mr. S. W. Garman.

\* Ann. Magaz. Nat. Hist., 1885, p. 87.